

# ADITHYA SWAMINATHAN

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## EDUCATION

### **University of Illinois, Urbana-Champaign, Champaign, IL — Class of 2024**

*Bachelor of Arts and Science in Computer Science & Mathematics*

**GPA:** 4.0

**Achievements:** LAS James Scholar, LAS Haan Scholarship Recipient

**Relevant Coursework:** Software Design Studio, Discrete Structures, Computer Architecture, Data Structures

### **South Brunswick High School, South Brunswick, NJ — Class of 2020**

**GPA:** 4.47

**Achievements:** National AP Scholar, National Commended Student Award, National Honors Society Member, Math Honors Society, French Honors Society, High Honor Roll Member

**Relevant Coursework:** Differential Equations, Linear Algebra, Modern Physics, Data Structures, Mobile App Development, AP Computer Science, Real Analysis, Complex Analysis, Multivariable Calculus, AP Physics C

## EXPERIENCE

### **CS 126 Course Assistant, Champaign, IL | January 2021 - Present**

- Assisted with the retooling of design and infrastructure of the course
- Worked with the professor in order to update course projects
- Held weekly code review sessions with students and ensured more production-level code
- Hosted office hours to work with students on issues with projects

### **Illinois Geometry Lab Undergraduate Researcher, Champaign, IL | January 2021 - Present**

- Worked on creating interactive visualizations in the Wolfram Mathematica computing system
- Operated closely with the professor to design modern project outlines
- Performed in a team-based environment to produce a final project while meeting strict deadlines

### **Storming Robots, Branchburg, NJ | June 2018 - July 2019**

- Gave in-person instruction to 10 VEX RobotC students aged 9-11
- Taught two algorithm-based C/C++ courses to a total of 35 kids aged 12-16
- Assembled and administered lesson plans for both courses to students

### **BA Coding Club, Brunswick Acres Elementary School, NJ | November 2018 - March 2019**

- Organized after-school club focused on teaching basic concepts of programming
- Taught Scratch programming language to children at former elementary school

## PROJECTS

### **InfiniteWellSimulator (C++)**

- Uses Quantum Physics theories to provide an in-depth experience akin to “particle in a box” simulation
- Graphs spatial and momentum wavefunctions for quantum particle in question
- Provides user control over all aspects of the simulation (from particle specs to lighting of simulation)
- Utilizes Cinder open-source library as source for GUI

### **ZeroRobotics (C)**

- Manipulated angular velocity and acceleration of bot to program hooking function for interlocking two SPHERES satellites by tracking Euler angles and quaternions
- Performed multiple rounds of iterative testing to perfect SPHERE’s movement using Dijkstra’s Algorithm
- Worked in real time aboard the International Space Station

### **LandmarkHelper (Java - Android Studio)**

- Able to recognize landmarks based on the picture fed into the system by implementing Cloud Vision API
- Authenticates user, and stores landmarks in user’s very own dataset using Firebase
- Utilizes Geolocation API to give activities to explore near landmark

## ACTIVITIES AND AWARDS

**4th Place in International Alliance Finals, Programmer for Team Quark Charm, NASA + MIT’s ZeroRobotics Competition**

**Co-Captain, Team 750B, School VEX Robotics Team**

**6th Place in Regionals, Lead Programmer for Team F.O.B, VEX RoboCup Junior Arduino Soccer Competition**

## SKILLS

**Languages:** Java, C/C++, HTML, CSS, JavaScript, Python, R, Verilog, Mathematica, SQL

**Cloud Services:** Firebase, Google Cloud Vision API, Google Geolocation API

**Tools:** Android Studio, Visual Studio Code, Visual Studio, Eclipse, Atom, IntelliJ, Git, CLion

**Firmwares:** Arduino